

REMARKS

Claims 26 and 31 have been amended to correct typographical errors, and Claim 16 has been cancelled. Claims 1, 3-15, 17-32, and 34-40 remain pending.

The Examiner has rejected claim 16 under 35 U.S.C. §112, second paragraph, as being indefinite as not providing antecedent basis for the limitation "the selected device." Claim 16 has been cancelled.

The Examiner rejected claim 30 under 35 U.S.C. §102(e) as being anticipated by Basilico (US 6,243,360). Claims 1, 10, 15, 24 and 29-32 are rejected under 35 U.S.C. §103(a) as being unpatentable over Basilico in view of Yates et al. (US 6,167,438). Claims 5, 7-9, 13, 14, 19, 21-23, 27, 28, 36, and 38-40 are rejected under 35 U.S.C. §103(a) as being unpatentable over Basilico in view of Yates et al. and in further view of Nataraj et al. (US 6,154,348). The Examiner's rejections are respectfully traversed as follows.

Claim 1 is directed towards a method "of distributing packets among a plurality of cache systems." Claim 1 also requires "configuring a content addressable memory (CAM) to indicate distribution of received packets based on a load balancing technique to a plurality of cache systems that each spoof a destination indicated by the received packets" and "receiving a packet." Claim 1 also requires "inputting at least a portion of the packet into the CAM." Claim 1 also requires "obtaining a result from the CAM to indicate whether to redirect the received packet to a selected cache system" and "redirecting the received packet to the selected cache system when the CAM indicates to redirect the received packet and to indicate to which cache system selected from among the plurality of cache systems the received packet is to be redirected if the CAM also indicates that the received packet is to be redirected." Claim 1 further requires "sending the received packet to a destination indicated by the received packet when the CAM does not indicate to redirect the received packet." Independent claims 15, 29, and 31 have a similar limitation that includes mechanisms for obtaining a result from the CAM which indicates whether to redirect the received packet and to indicate to which cache system selected from among the plurality of cache systems the received packet is to be redirected if the CAM also indicates that the received packet is to be redirected based on a load balancing technique.

Claim 10 is directed towards "method for facilitating traffic distribution among a plurality of devices. Claim 10 also requires "generating a plurality of entries within a content addressable memory" and "each entry including a set of bit values that correspond to at least a portion of a packet and each entry including one or more destination fields indicating where to send a packet that matches the entry's set of bit values and indicating whether to redirect the

packet from a destination indicated by the packet, wherein the CAM is configured to distribute received packets to the plurality of processing devices cache systems based on a load balancing technique." Claims 24, 30, and 32 also have an apparatus or computer program product for configuring such a CAM.

In other words, embodiments of the present invention provide mechanisms that allow a portion of a packet to be input into a CAM so as to return results that (1) indicate whether to redirect the packet to a selected cache system and (2) indicate to which cache system of the plurality of cache systems to redirect the packet based on a load balancing technique.

In contrast, Basilico teaches using or configuring a CAM simply to look up port codes based on a particular destination address. The CAM is only shown in Fig. 4 and only described in Col. 5, Lines 8-18 and Col. 6, Lines 1-3. In these portions, Basilico teaches that a "microprocessor 62 stores a destination address field 38 for a data frame 28 (See Fig. 2) in the content addressable memory 64" and this "address stored in CAM 64 is used as an entry into a table look-up contained in the RAM 66." Also, this "table look-up provides a code which indicates the address of the network interface card with which the transmitting workstation wishes to communicate." That is, the destination address field of a packet is used to retrieve a code via the CAM that corresponds to a destination NIC to which the workstation wishes to communicate. The code is then "embodied in the header 30" and "prepended to the frame by the processor before transmitting the frame to the cross-connect switch 52." The switch assigns codes to each output port. See Col. 4, Lines 4-7. In other words, Basilico is teaching that the destination address in the packet is input to a CAM to look-up a port code that corresponds to an output port and NIC.

Basilico also describes a process in Fig. 5B and Col. 5, Line 42 through Col. 6, Line 36 which only briefly mentions the CAM and its use for matching a packet's destination address to a particular port code. In Steps 502, the workstation sends a data frame that has a destination address to the switch. This address had previously been obtained by the workstation from the server and the address corresponds to the first NIC in the server. Col. 4, Lines 50-57. In step 506, a header is generated by the CAM/RAM lookup from the destination address of the packet that was received into the switch. Col. 5, Lines 1-3. In step 510, the "header is appended to the data frame...and transmitted to the cross-connect switch 54." Lines 4-6 (Emphasis added). As shown above, this header includes a code that corresponds to a particular output port of the switch and NIC of the destination server.

Of note, the packet with its prepended header (which was previously generated by the CAM) is transmitted to the cross-connect switch, and it is the cross-connect switch 54, and not

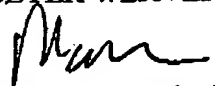
the CAM, which is then described as performing load balancing in Steps 510 through 522. Additionally, the CAM is shown as a separate device 64 than the cross-connect switch 52 in Fig. 4. (It appears that the text of the specification uses the incorrect label 54 for the cross-connect switch since the label 54 is shown as physical MAC layers in Fig. 4). Specifically, in Step 512, "the switch 54 tests ...whether the destination port is currently busy." In Steps 514 and 518, if the specified port in the header (generated by the CAM in previous Step 506) is busy and there are other available ports in the same group, it is then determined whether another port is busy (Step 512). If the new specified port is not busy, the packet is sent to the new specified port (Step 512) prior to stripping the generated header (Step 516). These load balancing steps are performed by the cross-connect switch after the CAM has produced an initial port code for the initial destination and after the packet with its new header is transmitted to the cross-connect switch. Basilico does not mention the CAM again with respect to load balancing, but merely describes the load balancing steps as being performed by the cross-connect switch. Basilico fails to teach anything about the CAM indicating *whether to redirect the packet*, in the manner claimed. Additionally, Basilico fails to teach using a CAM that is configured to redirect traffic to a cache system based on a load balancing technique (or configuring a CAM in such a manner), in the manner claimed. In sum, Basilico fails to teach or suggest apparatus or methods for using (or configuring) a CAM to return results that both (1) indicate whether to redirect the packet to a selected cache system and (2) indicate to which cache system of the plurality of cache systems to redirect the packet, in the manner claimed. The secondary reference also fails to teach or suggest such feature.

In view of the above, it is respectfully submitted that claims 1, 10, 15, 24, 29, 30, 31, and 32 are patentably distinct from the cited art.

The Examiner's rejections of the dependent claims are also respectfully traversed. However, to expedite prosecution, all of these claims will not be argued separately. Claims 3-9, 11-14, 17-23, 25-28, and 34-40 each depend directly from independent claims 1, 10, 15, 24, 29, 30, 31, or 32 and, therefore, are respectfully submitted to be patentable over cited art for at least the reasons set forth above with respect to claims 1, 10, 15, 24, 29, 30, 31, or 32. Further, the dependent claims require additional elements that when considered in context of the claimed inventions further patentably distinguish the invention from the cited art.

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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